

WARREN COUNTY

Cancer Control and Prevention Capacity and Needs Assessment Report Summary

December 2004

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Notices:

Medicine is an ever-changing science. As new research and data broaden our knowledge, conclusions may change. The authors and reviewers have endeavored to check the sources of information and to utilize sources believed to be the most reliable in an effort to provide information that is as complete as possible at the time of submission and generally in accord with appropriate standards. However, in view of the possibility of human error or changes in medical science, this work cannot be warranted as being complete and accurate in every respect. Readers are encouraged to confirm the information contained herein with other sources. Information concerning some of the sources of data, rationale for its utilization, acknowledgements of specific parties contributing to these efforts, as well as links to cancer-related information may be found at www.umdny.edu/evalcweb/.

This county-level Report Summary summarizes the larger county report, which is a baseline evaluation of this county, performed as part of the Capacity and Needs Assessment initiative of the New Jersey Comprehensive Cancer Control Plan (www.state.nj.us/health/ccp/ccp_plan.htm), under the direction of the New Jersey Department of Health and Senior Services (NJDHSS) Office of Cancer Control and Prevention (OCCP) (www.state.nj.us/health/ccp/), the University of Medicine and Dentistry of New Jersey (UMDNJ) (www.umdny.edu/evalcweb/), and the Evaluation Committee of the Governor's Task Force on Cancer Prevention, Early Detection and Treatment in New Jersey (Task Force Chair: Arnold Baskies, MD; Evaluation Committee Chair: Stanley H. Weiss, MD).

Comments may be sent to the first author of the Report Summary, Dr. Steven Godin at sgodin@po-box.esu.edu. ***Copies of any comments should also be sent to both*** Ms. Knight peg.knight@doh.state.nj.us and Dr. Weiss weiss@umdny.edu.

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Prepared by:

Steven Godin, Ph.D., MPH sgodin@po-box.esu.edu
Debra A. Levinson, MPA, FACHE

On behalf of:

The Warren County NJCEED Program at Warren Hospital, Phillipsburg, NJ

Under the guidance of:

Stanley H. Weiss, MD, University of Medicine and Dentistry of New Jersey-New Jersey
Medical School (UMDNJ-NJMS) and School of Public Health (UMDNJ-SPH)
(Principal Investigator)
Marcia M. Sass, BSRN, MSN, ScD, UMDNJ-SPH
Susan L. Collini, MPH, UMDNJ-NJMS
Daniel M. Rosenblum, PhD, UMDNJ-NJMS
Judith B. Klotz, DrPH, UMDNJ-SPH



NEW JERSEY
MEDICAL SCHOOL
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PUBLIC HEALTH
University of Medicine & Dentistry of New Jersey

With the assistance of:

- The UMDNJ Clinical Research Group – David L. Hom, MS, Loretta L. Morales, MPH, Benita Negron
- The Battelle Centers for Public Health Research and Evaluation – Joanne P. Abed, PhD, Jennifer Brustrom, PhD
- The New Jersey Department of Health and Senior Services: the New Jersey Cancer Education and Early Detection Program, the New Jersey State Cancer Registry, and the Center for Health Statistics.

Reviewed and edited by:

Jung Y. Kim, MPH, UMDNJ-NJMS
Daniel M. Rosenblum, PhD, UMDNJ-NJMS
Stanley H. Weiss, MD, UMDNJ-NJMS and UMDNJ-SPH

List of Contributors:

Susan Pappas, RN, MPH	Warren Hospital
Jean Wadnik, RNC, MA	Warren Hospital
Donna Rue, RN, MPH	Warren County Public Health Nursing
Marcie Grello, MPH	National Cancer Institute & Fox Chase Cancer Center
Beldina Opiyo-Omolo, MPH	East Stroudsburg University
Jennifer Aclan, MPH	East Stroudsburg University
Diane Maalouf, MPH	East Stroudsburg University
Alberto Cardelle, Ph.D., MPH	East Stroudsburg University
Rachel Cardelle MA	Consultant
Lakashia Bullock	New Solutions, Inc.
Hyoungji Jin	New Solutions, Inc.
Carol Ann Donchin	New Solutions, Inc.

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Warren County Cancer Capacity and Needs Assessment Report Summary

Introduction

The Office of Cancer Control and Prevention (OCCP) of the New Jersey Department of Health and Senior Services (NJDHSS), in conjunction with the mandate from the Governor's Task Force on Cancer Prevention, Early Detection and Treatment in New Jersey (Task Force), is developing comprehensive capacity and needs assessment reports concerning cancer, individualized for each county in the state. This Report Summary highlights key findings in the report for Warren County.

The Task Force released the New Jersey Comprehensive Cancer Control Plan (NJ-CCCP) in 2002.¹ Each county was commissioned to develop a comprehensive capacity and needs assessment report, as part of the initial implementation steps for the NJ-CCCP. The Report and this Report Summary were developed under the direction of the University of Medicine and Dentistry of New Jersey (UMDNJ) and the Evaluation Committee of the Task Force, in furtherance of the NJ-CCCP (which can be found at http://www.state.nj.us/health/ccp/ccc_plan.htm). This particular assessment was funded by the OCCP through the following New Jersey Cancer Education and Early Detection (NJCEED) county program in Warren County: Warren Hospital in Phillipsburg, NJ.

The purpose of the capacity and needs assessment reports is to identify the major cancer issues affecting each county and the county's available resources, or lack thereof, for cancer prevention, screening, and treatment, and to propose recommendations for improvement. The Warren County Cancer Capacity and Needs Assessment Report² analyzes the population demographics and the cancer incidence and mortality rates and distribution of stage at diagnosis for the seven priority cancers of the NJ-CCCP (breast, cervical, colorectal, lung, oral, melanoma, and prostate), as well as current resources available, in the county. These data guided the development of evidence-based recommendations and interventions to address cancer control priorities at local and state levels.

Section 1 – County Demographic Profile

Warren County is one of the largest counties within New Jersey, covering of 364.55 square miles. This county is located in northwest New Jersey and is 85 miles west of New York City. It borders Hunterdon, Morris, and Sussex counties, and is separated from Pennsylvania by the Delaware River. Over one-third of the land mass in Warren is devoted to farming, with approximately 60% being woodlands, wetlands, and internal lakes and streams. In 2000, there were 102,437 residents within Warren County, with an estimated 108,091 residents in 2002. The county's population density (281 people per square mile) is substantially less than the state

average (1,124 people per square mile).³ Warren County is expecting approximately 13% population growth between the years of 2000 and 2010.^a Specifically, those municipalities with the greatest expected growth are Lopatcong Township (53%), White Township (49%), Greenwich Township (25%), Washington Township (24%), Mansfield Township (23%), Liberty Township (19%), and Independence Township (16%).³

Gender and Age-Group Distributions

According to the 2000 Census Report,⁴ the population of Warren County is distributed fairly equally across urban (58,926) and rural (43,511) areas. Of the 102,437 residents in the county, 51.3% (52,567) are female and 48.7% (49,870) are male. Nearly one-half of Warren County residents are between the ages of 25 and 54 years, with a median age of 37.6 years. A little over 28% of the population is 19 years or younger, while about 13% of the population is 65 years or older. Seven municipalities stand out for having the largest percentage of residents ages 65 and older: Allamuchy (633; 16% of its population); Alpha Borough (434; 17% of its population); Harmony Township (379; 14% of its population); Lopatcong (1,294; 22% of its population); Phillipsburg Town (2,305; 15% of its population); Pohatcong (631; 16% of its population), and White Township (773; 18% of its population).

Race and Ethnicity

In Warren County, the large majority of residents are white (95%).^b The second largest population group is Hispanic (3.7%), followed by black (1.9%) and Asian (1.2%). Within the Hispanic population, Puerto Ricans are the most common. Hackettstown Town has the highest percentage of Hispanic (8.0%) and Asian residents (2.9%). Mansfield Township has the highest percentage of black residents (4.5%).

Income Levels and Poverty

The 1999 median incomes for Warren County households (\$56,100) and families (\$66,223) were similar to those of the state – \$55,146 and \$65,370, respectively. The median per capita personal income in Warren County (\$25,728) was slightly lower than the New Jersey median (\$27,006). Only 3.6% of families in this county live below the poverty level, compared to the state average of 6.3%.⁵ Nonetheless, four municipalities in this county have poverty rates higher than the state average: Alpha Borough (5.5%), Lopatcong Township (4.7%), Phillipsburg Town (9.9%), and Washington Borough (5.0%). Pockets of considerable poverty do exist in Warren County. The census tracts in Warren County having the highest percentages of families living at the poverty level or lower include census tracts #306 (113; 10%), #307 (93; 7.1%), and #309 (119; 16%), all located in Phillipsburg; and census tract #324 (38; 5.5%) located in Alpha Borough.

^a In general, percentages in this report are rounded to two digits.

^b Hispanics and non-Hispanics may be of any race. Racial categories include both Hispanics and non-Hispanics. Some tables include summaries for white and black race and for Hispanic ethnicity. Data on non-Hispanics is not available. Comparisons of Hispanic rates with rates for the whole population may underestimate the difference between Hispanics and non-Hispanics because Hispanics are included in the total population.

In an effort to assess current levels of poverty in Warren County, school lunch program data for 2002 was obtained from the Division of Field Services of the New Jersey Department of Education. Eligibility for free or reduced-cost (\$0.40 per day) lunches is based on parental/guardian income level. Within Warren County, there were 1,751 children who qualified for the free lunch program in 2002. Another 822 children qualified for the reduced-cost lunch program. While comparatively few children in Warren County are eligible for these programs compared to other counties, there were a number of townships and boroughs in Warren that had relatively high percentages of student eligibility. These municipalities included Phillipsburg Town (36%), Washington Borough (23%), Alpha Borough (16%), Mansfield Township (14%), Hackettstown Town (12%), and Belvidere Town (8.4%).⁶

Educational Attainment

Within New Jersey, almost 18% of the residents have less than a high school diploma, while almost 30% have a bachelor's degree or higher. Within Warren County, 15% of residents aged 25 and over have less than a high school education, and 24% of residents aged 25 and over have at least a bachelor's degree.⁷ Although Warren County overall has a fairly well-educated population, specific townships and municipalities within Warren County have relatively low educational attainment. Phillipsburg Town stands alone as the municipality with the highest number and percentage of residents aged 25 and over (2,847; 29% of its population) who have not attained at least a high school diploma.⁷

Public Transportation

Warren County, like most rural counties, does not have a well-developed public transportation system. The only public bus line in the county runs from Hackettstown to Washington to Phillipsburg and has 12 stops along the way. This transportation system does not provide adequate service to those living in other towns and townships with high poverty levels (i.e., Blairstown Township, Lopatcong Township, Oxford Township, and Pohatcong Township). Residents from these locations must rely on an additional transportation system called the WCT (Warren County Transportation), which is a shuttle service available by appointment only to the disabled, low-income residents, senior citizens, and veterans.³ The wait for this service can be 30 to 45 minutes or longer, depending on demand and the location of the WCT shuttle bus on its route at the time the appointment is made.

Health Status Indicators

Based on standard health indices (i.e., infant mortality rate, percentage of low birth weight babies, average life expectancy), Warren County has somewhat better health status indicators than the rest of New Jersey.²

Alcohol abuse and tobacco use are risk factors for several cancers, including oral and lung cancers. Warren County ranked 2nd highest of all New Jersey counties in residential treatment admissions for alcohol abuse among adults aged 18 years and older, with a rate of 347.9 admissions per 100,000 residents.⁸ The Warren County municipalities with the highest number

of alcohol treatment admissions in 2001 were Phillipsburg Town (132), Hackettstown Town (65), Washington Borough (38), Belvidere Town (35), and Washington Township (25).⁹

The Warren County Public Health Nursing Department conducted a randomized health behavior risk assessment survey in 2001 and again in 2003.^c These surveys used selected questions from the Behavioral Risk Factor Surveillance System (BRFSS) to measure a variety of health risk behaviors. The 2001 survey indicated that Warren residents regarded alcohol abuse and tobacco use as two of the top three health problems within the county.¹⁰ These concerns were confirmed by the findings of the 2003 study, with a number of respondents reporting that they either drink alcohol and/or smoke daily.¹¹ Furthermore, for those who reported smoking, many had done so for over a decade.

Environmental Contributions to Cancer

Long-term exposure (15 or more years) to radon has been identified as a risk factor for lung cancer.¹² Warren County is within the northwestern part of the state known to have elevated radon gas along the “Reading Prong” radon belt.^{d,13} These high concentrations of radon are commonly seen in the bedrock formations common to this geographic region, and testing of homes within this region has revealed high indoor levels of radon gas.¹³ According to the New Jersey Department of Environmental Protection (NJDEP), all 22 municipalities in Warren County fall within the “Tier 1” designation where greater than 25% of the home sites tested had radon levels of 4.0 pCi/l or higher.¹³ The NJDEP Statute #26:2D-80 indicates that for all newly built homes and any resale of existing homes since 1986 radon removal ventilation systems are required. A number of other statutes require the public to be educated about the benefits of radon removal. However, residents living in homes built prior to 1986 are not required by law to have radon removal systems. Over 72% of the homes built in Warren County were built prior to 1980. Municipalities with the highest percentage of homes built prior to 1980 include: Phillipsburg Town (97%), Alpha Borough (94%), Pohatcong Township (93%), Washington Borough (89%), Belvidere Town (84%), and Harmony Township (80%).¹⁴ Eleven municipalities in Warren County have radon levels that are over double (> 8.0 pCi/l) the Tier I designation of 4.0 pCi/l: Belvidere Town (10.0 pCi/l), Blairstown Township (8.4 pCi/l), Franklin Township (12.8 pCi/l), Frelinghuysen Township (10.7 pCi/l), Greenwich Township (12.5 pCi/l), Harmony Township (9.5 pCi/l), Hope Township (10.2 pCi/l), Liberty Township (12.5 pCi/l), Mansfield Township (10.2 pCi/l), Oxford Township (11.3 pCi/l), and White Township (11.4 pCi/l).

There is concern that environmental contamination may increase the risk for some types of cancer. Many of the townships within Warren County have numerous environmental contamination sites in various stages of NJDEP remedial action including one superfund site

^c In both studies, a randomized list of mailing addresses within the county was generated, with 2,000 mailings in 2001, and 3,000 mailings in 2003. The 2001 study resulted in 572 returned surveys (29% response rate), while the 2003 effort resulted in 702 returned surveys (23% response rate). While the surveys provided useful information for local health services planning, those participants responding to these surveys may not be representative of the total population of Warren County. Furthermore, while a number of questions were taken from the BRFSS, there were some questions that were developed specifically for these studies. No internal consistency reliability analyses were conducted to determine whether these surveys were reliable or valid.

^d The Reading Prong is a uranium-rich geological formation stretching from Pennsylvania through northwestern New Jersey into Southern New York State.

(Washington Township).¹⁵ Two municipalities stand out as having a very high number of active environmental contamination sites known to have carcinogenic agents: Hackettstown Town (10 sites) and Phillipsburg Town (11 sites). Many of these sites are located on the properties of automobile service stations where the contaminants are gasoline and petroleum products that either have been illegally dumped onto the ground or have leaked into the ground water due to faulty underground fuel tanks. The relevance of the presence of these sites to cancer risk is not known.

Section 2 – Overview of Overarching Issues

Detailed information regarding cancer screening, education, advocacy, treatment, palliation, and other activities has been collected to identify resources currently available in Warren County. This information was included in the statewide Cancer Resource Database of New Jersey (CRDNJ).¹⁶ Of the 43 healthcare and social service related organizations located in Warren County, it was determined that 26 offer some form of cancer screening. The most common forms of cancer screening are Papanicolaou (“Pap”) smears, fecal occult blood tests (FOBT), and prostate screening, followed by clinical breast exams, skin cancer screening, and colorectal cancer screening. While six healthcare organizations indicated that they perform mammography, only three locations within the county actually provide this service. The other three organizations are points of entry to mammography services, but the actual screening is performed at a different location, primarily in the Phillipsburg or Hackettstown areas. Similarly, responses to the CRDNJ survey indicated that colonoscopies are conducted only in these two areas. With the exception of Warren Hospital in Phillipsburg and Hackettstown Community Hospital in Hackettstown, little if any colorectal cancer screening is provided in geographic areas of poverty in Warren County.

Cancer Education and Treatment

All facets of cancer education, early detection, and treatment are coordinated for the county through Warren Hospital located in Phillipsburg. Staff at Warren Hospital provide the primary leadership within the county and collaborate with professionals employed by other organizations to deliver the cancer plan for early detection and education. Other organizations that play an important role in this process include the American Cancer Society, Warren County Public Health Nursing, the Department of Health, and, to a lesser extent, Geriatric Services of Warren Hospital and Planned Parenthood of Greater Northern New Jersey.

The Warren County NJCEED Office is located within the Health Education Office of Warren Hospital in Phillipsburg. The Warren County Comprehensive Cancer Control Plan describes primary prevention efforts, early detection, referral activities, as well as tertiary social support and services for cancer patients, family members, and cancer survivors. This plan has a very strong community education component. Various employers and organizations in the community (i.e., Phillipsburg Mall, Wal-Mart, Northwest New Jersey Community Action Program, Planned Parenthood) have a history of willingness to participate and collaborate. Most of the educational programming is in the form of individual- and group-level cancer education and social support. Hackettstown Community Hospital also provides some cancer education, independent of the Warren County NJCEED Office. Print media and television Public Service Announcements

(PSAs) are often used to supplement learning and educational activities. Prior attendance records show strong community participation and high levels of consumer satisfaction.

While there are some outreach efforts with worksites, schools, and community groups, most of the education and prevention programs are conducted at Warren Hospital or nearby in the Phillipsburg area. Warren Hospital is located at the southwest end of the county, and consumers living in the middle and toward the northern perimeter of the county are likely to receive less cancer information. Cancer prevention and control efforts need to target high-risk geographic areas where the cancer burden is high. For example, more outreach and educational programming are needed in areas like Oxford, Belvidere, Allamuchy, and White Townships, and Washington Borough. While Warren Hospital has a history of collaboration with outside organizations and community groups, the responsibility to maintain the prevention message continues to lie with staff at Warren Hospital. According to staff at the Warren County Health Department, the leadership and commitment to provide cancer prevention and education are strong among Warren Hospital staff.¹⁷ The NJCEED Office at Warren Hospital has a reputation within the county for providing a significant amount of education despite limited resources. When our needs assessment staff interviewed personnel from the Warren County Health Department and from Public Health Nursing, we were referred to Warren Hospital for answers to all questions on community-based cancer education. This was due to their efforts to avoid program duplication. The Warren County Health Department and Public Health Nursing have a strong history of providing health education regarding other chronic diseases to the community, some of which are useful in cancer prevention (i.e., nutrition education). Beyond the local health department, the only other health education and cancer screening initiatives are conducted at Hackettstown Community Hospital (HCH). However, the scope and breadth of community outreach and cancer education in Hackettstown have been clearly lacking. Perhaps, with the development of the new Cancer Center scheduled to open at HCH in 2005, there will be a shift in ideology whereby more comprehensive efforts in outreach education will be valued. Currently, however, there is an over-reliance in the county on the expertise of staff at Warren Hospital, and “cancer literacy” within social service and agency staff elsewhere in the county is lacking.

Palliative Care and Quality of Life Improvement Programs

There are no palliative care programs specific to cancer in Warren County. All palliative care is provided through referrals to Hunterdon Regional Cancer Center, St. Luke’s Medical Center in Bethlehem, PA, and the Cancer Center at Lehigh Valley Hospital located in Allentown, PA. Support groups exist at Warren Hospital, and to a lesser degree Hackettstown Community Hospital, for breast and prostate cancer patients, but not for other high-incidence cancers in Warren County (i.e., melanoma, colorectal, and cervical cancer). The Karen Ann Quinlan Center of Hope Hospice, located in Sussex County and affiliated with Hackettstown Community Hospital, provides at-home care and in-home counseling to chronic disease patients (including cancer patients) living in Sussex and Warren counties. Hunterdon Regional Cancer Center and Morristown Memorial Hospital are other locations where Warren County residents can receive hospice support services. Few, if any, services specialize in childhood cancers.

Related Wellness Education at Worksites

There are 41 large worksites within Warren County that employ at least 75 employees. Twenty-two of these worksites were willing to be interviewed by our project staff as part of the effort to create a comprehensive database for inclusion in the CRDNJ. Nine worksites have a history of providing cancer-related education on site. In addition, six worksites and two public schools have at some point provided employees/staff with smoking cessation or referral services for smoking cessation. Five employers have active physical activity programs available for their employees. Project staff experienced significant difficulty accessing this information, as many worksites indicated they have policies of not sharing such information with outside parties. Therefore, these figures may not represent all employers and the programs offered to employees. A total of seven worksites have expressed interest in active participation in the Warren County Cancer Coalition. Worksites expressed considerable interest in the idea of web-based education that could be made available to employees through the human resources section of their company website. The Warren County Chamber of Commerce has also expressed interest in marketing worksite-based health education; such efforts are consistent with the Chamber's mission of attracting talented people to work within the county. It is our hope that as more worksites become involved, such involvement will spread throughout the county.

Faith-based Organizations

A total of 68 faith-based organizations located in Warren County were contacted to obtain information for inclusion in the statewide CRDNJ. Some churches have a strong community presence,, with members supporting local shelters or food pantries or volunteering in the local community. In some cases, churches have sponsored bone marrow donor searches or have provided ministry to families with chronic or terminal illnesses. In other cases, churches indicated that they "just pray" for the sick and needy. Warren County appears to have congregations with a history of community organizing and sponsoring events or activities related to social causes. None of the church representatives contacted by our staff reported that there was a health advisor in the church. Many of the churches in Warren County have developed (or are considering developing) websites to keep congregations abreast of church-related news and activities, and a number of clergy or church administrators expressed a willingness to have links to cancer-related education and screening information posted on their websites. These churches' web pages are almost always designed and maintained through members of the congregation who volunteer their computer expertise.

Public Schools

New Jersey legislation mandates that public schools provide physical and health education. For example, each board of education that operates an educational program for students in grades 7 through 12 must offer instruction on breast self-examination (Statute: 18A:35-5.4).¹⁸ Interviews with administrative staff at 42 public schools in Warren County (91% of the 46 elementary, middle, and high schools in the county's 25 school districts) indicated that all of the schools provide smoking/tobacco use/cessation, alcohol use/prevention, nutrition, and sun safety education. Staff at high schools and freestanding middle schools (i.e., 6th through 8th grades) reported that their female students receive instruction in breast self-examination. However,

respondents from elementary schools (Kindergarten through 8th grade) were more likely to be unclear or unaware about whether breast self-examination education is provided at their schools.

While administrative staff at these schools report that students receive the mandated education, it was beyond the scope of this study to assess the quality or breadth of such education. Very few, if any, schools have developed partnerships with Warren Hospital to assure that the education provided is adequate. Due to limited resources, Warren Hospital staff do not have the luxury of traveling to the schools to provide trainings and/or educational programs. Most of the school administrators interviewed indicated that their schools do not have a formal health coordinator; thus, the teachers involved in health education are responsible for developing and implementing the curriculum. The overwhelming majority of principals were unaware of any school coalitions in the community related to health education. However, some reported that some of the health education teachers participate in community-based health initiatives or serve on boards of health/social service associations.

All of the schools participating in the interviews reported having some form of health service (i.e., school nurse) within the school. All schools indicated they had a tobacco policy and an enforcement policy for those who violated the tobacco policy. Among the schools interviewed, none reported having a health education council.

Section 3 – Cancer Burden

All incidence¹⁹ and mortality²⁰ rates cited herein are per 100,000 and age-adjusted to the 2000 U.S. population standard⁴. All county and state rates are average annual rates during 1996–2000. For simplicity, the 1996–2000 average annual age-adjusted incidence or mortality rate hereinafter will be abbreviated and referred to as incidence or mortality rate, respectively. The reason the five-year average has been routinely used is that the small number of cases in a single year leads to statistical variations that are not generally meaningful. For U.S. incidence rates, 1999 or 2000 rates were used. Unless otherwise specified, all rates are for invasive cancer only.

Despite low crude incidence, Warren County has average annual incidence rates for five different types of cancer that exceed the average for the state of New Jersey. These cancers within Warren County that exceeded the state average incidence rates are bladder (county rate was 28% higher among females and 18% higher among males than the state), breast (6% higher among females), colorectal (10% higher among females), oral (5% higher among females), and melanoma (31% higher among males, 28% higher among females). Furthermore, Warren County had a 5% higher incidence rate among females for all cancers combined (a rate that includes cancers not discussed in this report). Only the prostate cancer incidence rate in Warren County is considerably lower than the state rate. For the five-year period 1996–2000, death rates due to cancer were lower in Warren County (234.3 for men and 166.7 for women) than in the state as a whole (261.1 for men and 181.6 for women). The summary table below provides information about cancer prevalence, incidence rates, and mortality rates for Warren County residents.

Summary of Selected^a Age-Adjusted^b Warren County Cancer Statistics, 1996–2000^c

	Estimated Prevalence ^d	Incidence per 100,000 ^e	Mortality per 100,000 ^e
All Cancers,^f Warren County			
Male	1,500	623.8	234.3
Female	2,430	475.7	166.7
NJ-CCCP Priority Cancer by Gender			
Breast, female	946	146.8	26.2
Cervical, female	95	10.1	2.5
Colorectal, male	180	79.0	21.3
Colorectal, female	285	59.9	16.7
Lung, male	56	91.7	62.8
Lung, female	72	56.3	39.6
Melanoma, male	118	26.4	5.6
Melanoma, female	137	15.2	1.5
Oral/Oropharyngeal, male	41	12.9	2.2
Oral/Oropharyngeal, female	33	6.7	1.5
Prostate, male	520	164.2	29.8

^a Based upon the NJ-CCCP.

^b Age-adjusted to 2000 U.S. Census population standards. Age-adjustment is used to describe rates in which statistical procedures have been applied to remove the effect of differences in composition (specifically, variations in age distribution) of the various populations. This is important in order to portray an accurate picture of the burden of cancer, since cancer is known to disproportionately affect persons of differing ages.

^c Rates are average annual rates during the time period 1996 through 2000.

^d Prevalence is the measurement of burden of disease in the population at a particular point in time. Within this report, it represents the number of people alive who have ever been diagnosed with the disease. Prevalence figures given here are rough theoretical estimates, based on a number of assumptions, and computed by applying national prevalence-to-incidence ratios to Warren County's average annual crude incidence counts for the five years 1996–2000, separately for each gender. Actual prevalence is likely to be of the same order of magnitude as the estimate.²¹

^e Incidence and mortality are gender-specific, age-adjusted annual rates, not counts. A rate at least 10% higher than the corresponding state rate is shown in bold italics.

^f "All cancers" represents the sum of all invasive cancer during the time period, not just the seven cancers below.

In addition to the cancers listed above, there are two cancers commonly associated with human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS): AIDS-related lymphoma; and Kaposi's Sarcoma (cancer of the soft tissues under the skin that lines the mouth, nose, and anus). While Warren County has the lowest HIV and AIDS incidence and prevalence in New Jersey (107 cumulative diagnoses of AIDS, 95 living with AIDS, and another 51 confirmed to have HIV infection), individuals responsible for implementing cancer prevention activities need to be cognizant of the HIV/AIDS population and their heightened risk for developing cancers.²² The Title II and Title III Ryan White Programs in Warren County are designed to provide care and treatment to persons with HIV/AIDS, including treatment for co-morbid conditions such as cancer.

The investigation of other cancers that occur in Warren County is beyond the scope of this report. It should be noted, however, that during the period 1996–2000, Warren had a high

incidence rate in a number of other cancers including Non-Hodgkin's lymphoma for both genders (highest in the state), esophageal cancer (2nd highest incidence rate out of all counties in New Jersey, and thyroid cancer (3rd highest incidence rate out of all counties in New Jersey).²³

Populations of Focus

In order to identify the groups that generate most of the cancer mortality and incidence for Warren County, cancer incidence and mortality rates, prevalence estimates, and staging data from the New Jersey State Cancer Registry were compared across gender and age groups. In addition, risk factor information obtained from a local study along with interview data obtained from healthcare professionals was analyzed.²⁴ Below is a summary of the populations of focus for priority cancers in Warren County.

Breast Cancer

- Of the 32 breast cancer cases among women aged 15–39 in Warren County, 17 cases (53%) were diagnosed at a later stage of disease progression compared to cases among older women in Warren County (22–26% of cases among women aged 50 and over) or women of the same age in the rest of the state (43% of cases). The age disparity may be explicable by the difficulty of detecting early stage breast cancer in younger women.
- In New Jersey, among 3,923 women aged 50 and over who were interviewed from 2000 through 2002, 78% reported having had a mammogram within the past two years.^{24,25} The rate for Warren County did not significantly differ from the state overall, but only a limited number of women within the county (36) were interviewed.²⁵ Screening rates in the county increased significantly during the period 1992–2002, as they did in the state overall.²⁵ Prior statewide Behavioral Risk Factor Survey (BRFS) efforts did not obtain a representative sample for Warren County; thus additional sampling within Warren County is recommended to understand the screening needs.
- The Cancer Information Service (CIS) of the National Cancer Institute used existing marketing profiles to identify those in need of cancer screening in New Jersey.²³ In this study, zip codes 07838 (Great Meadows), 07840 (Hackettstown and Allamuchy Township), 07863 (Oxford), 07823 (Belvidere), 07882 (Washington Borough), and 08865 (Phillipsburg, Alpha, and Lopatcong) were identified as geographic areas in greater need of breast cancer screenings. Within these municipalities, there are approximately 11,200 women aged 40 and over who are in need of routine mammographies.
- All Warren County high schools provide female students with instruction on breast self-exams. The majority of middle schools (grades 6 through 8) also provide this instruction. It appears that K-8 schools need to examine the extent to which this instruction is provided. There are no formal health education councils within the majority of public schools in Warren County. Consequently, there is no formal local mechanism by which cancer education materials can be periodically reviewed and modified to include recent advances and knowledge in cancer prevention and education.

Cervical Cancer

- Older women in their post-childbearing years may not perceive a need to obtain regular pelvic examinations and Pap smears.²⁶
- Nationally, approximately 20 million people are infected with human papillomavirus (HPV), a sexually transmitted disease.²⁷ It is estimated that there are 5.5 million new cases of HPV in the U.S. each year, with the majority of these cases in women of childbearing age.²⁸ There are an estimated 60 strains of HPV. While not all strains of HPV are associated with cancer, a significant number of HPV strains are associated with cervical cancer.²⁷ HPV is the most significant risk factor for developing cervical cancer; recommendations for the incorporation of HPV testing^e as part of a pelvic examination have been developed by the American College of Obstetricians and Gynecologists.^{1,29} According to staff at Warren Hospital and the Warren County Health Department, Warren County women do not have adequate understanding of HPV or the relationship between HPV and cervical cancer.
- Among 7,689 New Jersey women with no history of hysterectomy who were interviewed from 2000 through 2002, 83% reported having had a Pap smear within the past three years.^{24,25} Based on interviews of 71 women in Warren County, the county rate did not differ significantly from the state rate.²⁵ Prior statewide BRFS efforts did not obtain a large enough sample to be representative for Warren County. It is recommended that additional data be collected to evaluate the frequency of Pap smears received by women in Warren County.

Colorectal Cancer

- Warren County women (59.9 per 100,000) had a 10% higher incidence rate of colorectal cancer than women in the state as a whole (54.4). The rate for men in the county was the same as in the state (79.0).
- A large percentage (33%) of residents within Warren County report that they do not exercise at all, while another 36% report exercising at least 20 minutes one to three times per week. Only 14% of the respondents reported exercising four days or more for at least 20 minutes.¹¹ Obtaining local BRFS data would be helpful here to assess in more detail variables relevant to preventing colorectal cancer. BRFS data on physical activity are not currently available for Warren County.
- Among 4,961 New Jersey adults aged 50 and over who were interviewed from 2001 through 2002, 56% reported having had colorectal cancer screening (either with a fecal occult blood test within the past year or a sigmoidoscopy or colonoscopy ever).^{24,25} The rate for Warren County did not differ significantly from the rate for the state overall, but only a limited number of adults (30) within the county were interviewed.²⁵
- The CIS²³ identifies zip codes 07838 (Great Meadows), 07840 (Hackettstown and Allamuchy Township), 07863 (Oxford), 07823 (Belvidere), 07882 (Washington Borough), and 08865 (Phillipsburg, Alpha, and Lopatcong) as geographic areas in greater need for colorectal screenings. Within these high-risk geographic areas are approximately 16,050 residents aged 50 and over who should be screened regularly for colorectal cancer.

^e For example, the ViraPap™ will detect which strains of HPV DNA, if any, are present.

Lung Cancer

- According to the Warren County Health Behavior study,¹¹ smoking was considered by residents as one of the top three public health concerns in the county. New Jersey BRFS data representative of the county residents is vitally needed so that one can determine the extent to which tobacco use in adults and teens is a problem in Warren County.
- Long-term exposure to radon gas has been linked to lung cancer.¹² As mentioned previously, Franklin Township, Liberty Township, Greenwich Township, White Township, Oxford Township, Frelinghuysen Township, Mansfield Township, Hope Township, Belvidere Town, Harmony Township, and Blairstown Township are geographic areas with elevated radon levels. However, it is unclear what testing and appropriate remediation have been undertaken in these areas. Further, the percentage of residents at increased risk due to the synergistic effect of smoking is unknown. Therefore, it is recommended that this information be obtained from the NJDEP and examined. If these data substantiate the concern for potential long-term exposure among residents who have lived for at least 15 years in homes with elevated radon levels, additional BRFS data should be collected, if not already collected by the NJDEP.

Melanoma

- Among the few Warren County women (58) diagnosed with melanoma from 1996 through 2000, 6.3% were diagnosed at the distant stage, compared to 2.3% of women statewide. In addition, the incidence rate for melanoma among women in the 65- to 74-year-old age group (66.9 per 100,000) was double the rate among New Jersey women of the same age group (33.7).
- Warren County has a high percentage of residents with Northern European and Scandinavian heritage. Thus, many county residents are fair-skinned and/or have freckles, and consequently, are more at risk for melanoma.³⁰
- Little education on the topic of skin cancer prevention is offered within Warren County with the exception of education offered through the Warren County NJCEED office and the schools.
- Through a countywide BRFS, Warren County would be able to better determine the frequency of sunscreen use and sun-safe behaviors. Presently, no representative data is available to determine the frequency of the population using sun block. This issue is particularly important given the large number of residents who work outdoors (i.e., construction workers, farmers, etc.).⁵

Oral/Oropharyngeal Cancer

- Of the cases of oral cancer diagnosed during 1996–2000, eight out of 33 cases among men and five out of 19 cases among women were unstaged. Efforts are needed in the county to improve the staging records for oral cancers. Of the cases that were staged, there were ten cases among men and eight cases among women diagnosed at the *in situ* stage.
- Local BRFS data are needed to determine the frequency with which Warren residents visit their dentists.

- Warren County has the 2nd highest residential treatment admission rate for alcohol abuse and dependence in the state, which represents a risk factor for oral/oropharyngeal cancer. Further data collection is needed to determine the demographic characteristics and geographic locations of populations in greatest need of alcohol and drug prevention efforts.

Prostate Cancer

- For Warren County men diagnosed with prostate cancer, those aged 50 and over have a higher percentage of regional and distant stage diagnoses than younger men in the county or men of the same age in the state. Thus, men aged 50 to 74 years may not be obtaining prostate cancer screens as needed. There are approximately 7,700 men in Warren County aged 50 and over who are in need of routine prostate exams.³⁰ A countywide BRFS would provide information regarding the extent to which men receive screening for prostate cancer or counseling about screening options.

Section 4 – Discussion, Analysis and Recommendations

Recommendations for County and Local Priorities

Among women, Warren County had the 5th highest overall cancer incidence rate in the state. For women, incidence rates for breast, bladder, colorectal, melanoma, and oral cancers are higher than the corresponding state rates. For men, county incidence rates are higher only for melanoma. Mortality rates for each cancer site among males and among females are lower than the corresponding state rates.

There are geographic areas within Warren County that have significant poverty. Approximately 3.6% of Warren families have income below the poverty level. Examination of the geographic distribution of county resources shows a significant paucity of cancer-related services and programs within regions with a high poverty level, with the exception of Phillipsburg. According to the American Cancer Society's Eastern Division Diversity Work Plan, people of all ethnic backgrounds who are poor, lack health insurance, and lack access to higher quality cancer care have higher cancer incidence and mortality and lower rates of survival.³¹

With regard to service gaps, current programming by Warren Hospital tends to rely solely on an educational model, rather than the application of community and systems-level health behavior change theories.^f Environmental or cultural-level interventions that challenge public perceptions, belief systems, and cultural mores could be useful. For example, social marketing theory could be applied to multi-media messages that would reach worksites, churches, schools, and

^f For example, one-on-one education or group-level education uses pedagogical methods from the education field. Whereas community- and systems-level strategies (i.e., outreach efforts using health communication theory, social marketing efforts) attempt to change health behavior (i.e., seeking cancer screening) and are more often anchored in theories of public health practice.³² (This problem is not unique to Warren County; many health and social service organizations elsewhere have a history of providing programs that rely on educational models, or models that require interest and motivation on the part of the public.³²)

community members at a variety of locations within the community. A multi-media education effort that reaches all areas of the county is needed. While Warren Hospital lacks the personnel resources for such a venture, the use of the internet as a mass media health promotion tool may be a helpful strategy. Furthermore, a web-based educational training tool would be useful for empowering agency staff elsewhere in the county to develop more organizational diversity in cancer expertise. Through these web-based initiatives, medical providers may also receive messages that increase awareness of Warren County NJCEED efforts.

The priorities of the New Jersey Comprehensive Cancer Control Plan are applicable both statewide and within Warren County. Recognizing the breadth of the cancer problem and the limitations of time and resources, additional priorities need to be established based on evidence presented in this study. Whenever a NJ-CCCP strategy is related to the priorities and strategies identified for Warren County, the related NJ-CCCP strategy is identified by its number as stated within parentheses: e.g., (CE-1.1.1) refers to the NJ-CCCP's cervical cancer strategy 1.1.1 as found on page 121 of the NJ-CCCP. Priorities presented here are also related to the ten Essential Public Health Services (EPHS) as identified in the National Public Health Performance Standards.³³ (See Section 4 of the full report.²)

Priority 1: Improve access to cancer services for low-income individuals. (EPHS 4, 7, 8)

- 1) Expand NJCEED screening service locations to the municipalities that have little in the way of cancer education and early detection. Priority municipalities include Alpha Borough, Washington Borough, Lopatcong Township, as well as Allamuchy Township, Belvidere Town, and Oxford Town. Continued efforts, including specific programs for the Hispanic community, are needed in Phillipsburg.

Priority 2: Promote early detection and reduce cancer mortality. (EPHS 3, 4, 7, 9, 10)

- 1) Continue to support the NJCEED program in Warren County. Expand educational efforts in skin cancer prevention and increase screening efforts for the early detection of melanoma. For example, a countywide effort to educate residents via worksites, churches, and schools is needed. Expanded efforts are also needed to improve county residents' health literacy in breast, bladder, colorectal, and lung cancers.
- 2) Disseminate information regarding NJCEED through partnerships that include county businesses and faith-based organizations. These partnerships can be created in a cost-effective way through internet-based participation.

Priority 3: Advance awareness of cancer prevention and improve health literacy. (EPHS 3, 4, 7, 9)

- 1) Promote long-term healthy eating patterns, healthy weight, and physical activity for cancer prevention among county residents by incorporating local schools, workplaces, and churches in community efforts.
- 2) Encourage development of formal school health advisory councils and continue to teach youth throughout the county about the importance of not smoking, limiting sun exposure and using sunscreen, eating healthy foods, exercising regularly, and conducting self-breast exams for girls and testicular exams for boys.

- 3) Expand participation in cancer prevention to residents throughout the community by utilizing a web-based community-level systems approach targeted at large employers and churches.
- 4) Provide cancer training modules and information about screening locations for county agency and school staff (i.e., County Health Department; Municipalities-Local Boards of Health; School Nurses and Health Education Teachers) using the internet.

Priority 4: Expand the role and resources of the Warren County Cancer Coalition. (EPHS 1, 3, 4, 5, 9, 10)

- 1) Utilize the cancer coalition for countywide planning to implement the NJ-CCCP as appropriate and establish priorities for cancer outreach/education/screening, treatment and support throughout the county. The coalition should focus on executing the cancer-specific objectives outlined in the following sections.
- 2) Provide resources, including a staff person, to operate this coalition effectively.
- 3) Use the cancer coalition to increase communication of cancer-related activities throughout the county. Develop and implement a Warren County Cancer Coalition web page.
- 4) Develop and implement a Warren County Cancer Coalition website.

Recommendations for Statewide Priorities

Recommendation 1: Expand cancer early detection and education programs to foster greater participation among low-income populations. (AC-2, AC-2.17, ME-2, ME-4, ME-5)

- 1) Continue to support the NJCEED program. Evaluate the NJCEED program and ensure that the program has adequate funding to implement the following:
 - a. Include other cancers in the program.
 - b. Expand the presumptive eligibility requirement to include younger and older individuals who are currently not eligible for the program.
 - c. Adopt a set of “best practices” developed from nationwide and local experiences.
 - d. Establish a statewide media and public education campaign to raise awareness of melanoma and available strategies for prevention.

Recommendation 2: Promote prevention and education activities among adults and youth and foster health literacy. (NP-1, OR-2, OR-12)

- 1) Develop and implement internet-based educational and support opportunities.
 - a. Establish a model internet health literacy program that can be expanded to other counties.
 - b. Seek funding sources to support statewide efforts.
- 2) Support education and media campaigns to promote good nutrition, weight control, and physical exercise for cancer prevention.

- 3) Support collaborative efforts between the New Jersey Office of Cancer Control and Prevention and the New Jersey Department of Education to enhance education on healthy lifestyles, nutrition, and physical exercise in school curricula.
- 4) Continue to support the New Jersey Tobacco Control Program and advocate for legislation to curb tobacco use in public places.

Recommendation 3: Expand state resources to increase the number of people surveyed in each county for the New Jersey Behavioral Risk Factor Survey in order to provide improved county-level data. As noted earlier, representative data on behavioral risk factors among residents of Warren County are not currently available. Obtaining this information would provide a critical role in designing public health interventions. For this reason, increasing the BRFs sample size to obtain an adequate sample to represent Warren County, as well as additional survey questions on behaviors not currently covered, is recommended to assess the following:

- mammography screening practices
- Pap smear screening practices
- physical activity
- tobacco use
- radon testing of houses (if warranted)
- use of sunscreen and sun-safe behaviors
- preventive dental care
- characteristics of individuals in greatest need of alcohol and drug prevention efforts
- prostate cancer screening practices.

Closing Remarks

One of the true challenges for any county NJCEED office is to provide ongoing educational programming that reaches identified target population(s) in a cost-effective way. When funding streams are sufficient, staffing patterns can be sustained to provide educational and screening programs. However, once funding is reduced, such efforts become extremely difficult to maintain. Consequently, the very infrastructure created by these efforts erodes quickly, leaving many communities back at the original starting point when these programs did not exist. Furthermore, healthcare organizations are then faced with consumer disappointment regarding the cut-back of educational services once provided. Increasingly, as with other healthcare organizations, those responsible for providing health education are being pressured to provide cost-effective services and to be fiscally accountable for the services they provide. Now, more of the populations of focus can be provided with information at their convenience – at home, the worksite, or the local churches – than was possible before the age of the internet. By 2010, it is estimated that internet access in New Jersey will approach 50% to 65% among low- to middle-income families.^{34,35,36, g} Accessing information about health was the number three reason why

^g While internet adoption has saturated the middle- to high-income populations, the highest percentage increase is now occurring within the \$15,000/year and lower income brackets. According to a recent study conducted by the U.S. Census Bureau, approximately 59% of the U.S. population used the internet (from any location) in 2003, compared to 31% of individuals with family incomes less than \$15,000.³⁶ In this study, approximately 60% to 65%

Americans of all age groups used the internet in 2003. However, within the senior population, accessing health information is the number one reason for internet use.^{37,38,39} President Bush, in his address to the U.S. Department of Commerce, has established a national goal that all U.S. citizens will have home access to affordable broadband internet access by 2007.⁴⁰

Internet-based education should not replace more traditional strategies of cancer education and screening. Continued efforts are also needed in providing more traditional forms of outreach education. The internet can be used as a tool to market and advertise such efforts, as well as serving as a mechanism by which local community groups (i.e., churches; worksites; schools) can request educational programs and cancer screening.

The Institute of Medicine and the Centers for Disease Control and Prevention continue to support the development of on-line prevention strategies. As research has shown English literacy to empower the poor, so too has “Health Literacy” been shown to be a powerful approach in improving the ability of low- and middle-income groups to access health care services.^{35,41} Consumers will access the internet to obtain health education at their convenience from a variety of locations such as churches, restaurants, local libraries, cable television within the home, and shopping malls. The health education material they receive will be tailored to their reading and comprehension levels, while providing information about more traditional venues (i.e., local community-based programs) they can participate in.^{h,42,43}

The Cancer Capacity and Needs Assessment provides a detailed baseline assessment for Warren County. The data, interpretations, and recommendations were developed to provide a wide array of public health and medical personnel with standardized information and detailed analyses that can help guide and focus their efforts at the county level, including such local health initiatives as the forthcoming Community Health Improvement Plans. The reports from all of the counties will collectively inform the continuing comprehensive cancer control efforts of the Office of Cancer Control and Prevention of the New Jersey Department of Health and Senior Services; the Governor’s Task Force on Cancer Prevention, Early Detection and Treatment in New Jersey; and the University of Medicine and Dentistry of New Jersey.

of New Jersey’s total population used the internet in 2003.³⁶ Although data are not available on low-income families within New Jersey, extrapolating from the national data, one can estimate that approximately 35% to 40% of low-income families had access in 2003. In reviewing the national data, adoption of the internet increases approximately 3% to 6% each year among low- to middle-income families.

^h Because on-line health education is in its infancy (witnessed in the last 10 years), many internet websites have typically posted “print media” onto the web for consumers to read. Over the next decade, internet-based health education will continue to evolve using more interactive approaches, tailored messages, and the application of health communication and behavior change theories.

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